

NOTES

RHYNCHOSTEGIOPSIS CAROLAE (MUSCI, HOOKERIACEAE): A NEW SPECIES FROM COSTA RICA

Rhynchostegiopsis carolae Crosby, sp. nov.—FIGS. 1–5.

Differt haec species a *R. complanata* C. Müll. cellulis apicalibus marginalibus minus inflatus.

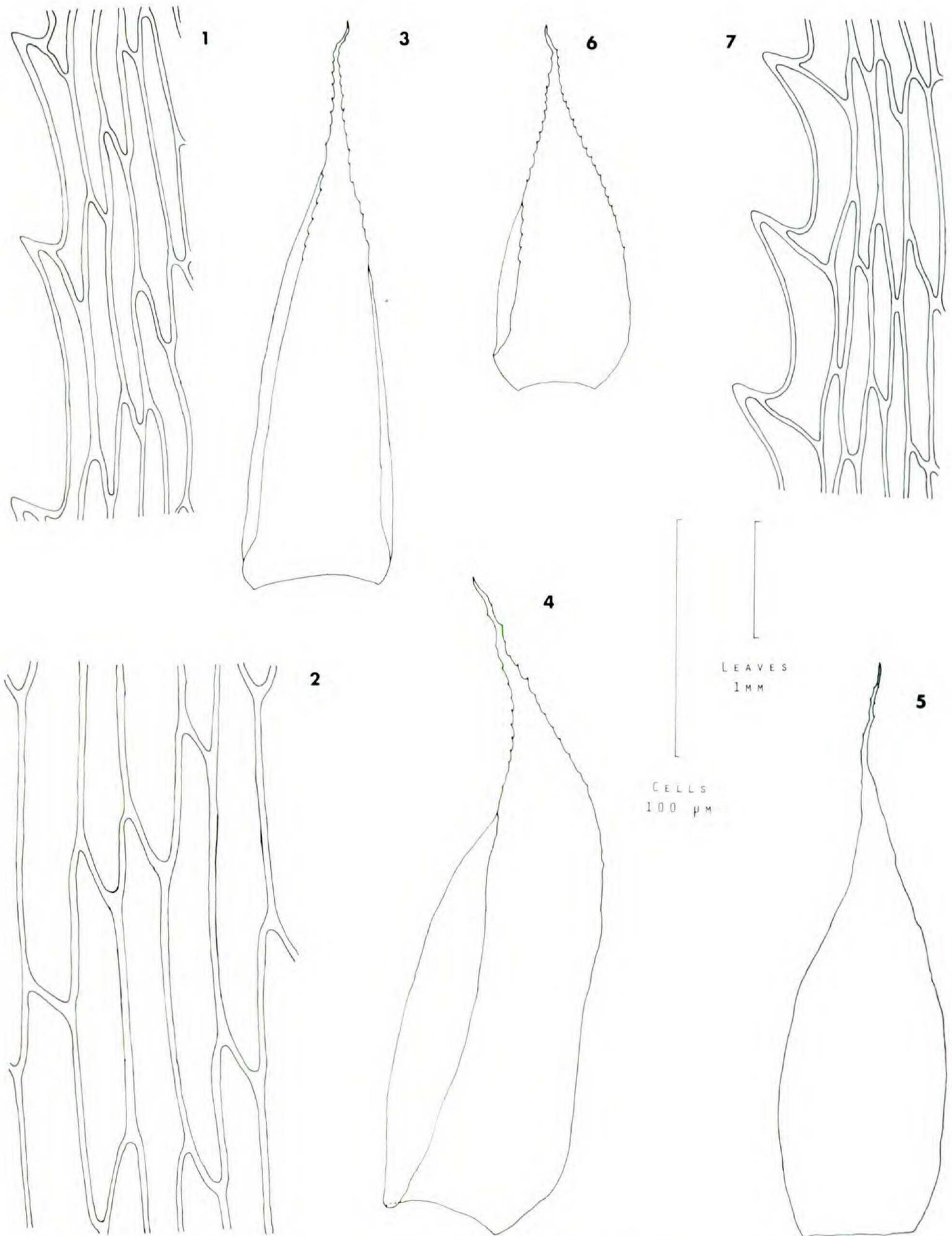
Plants robust, stems often 10–12 cm long before decaying and breaking up, infrequently subpinnately branched, foliated stems and branches 5–7 mm wide. Leaves 5.0–6.0 × 1.5–2.0 mm, dorsals ovate, gradually narrowed to short acumen (Fig. 3), laterals falcate, often folded (Fig. 4), ventrals usually wider and slightly falcate (Fig. 5); margins entire below, serrate in acumen; marginal cells at widest point of leaf 6–8 μm wide and the submarginal 4–6 rows of cells conspicuously narrower (6–10 μm wide) than median cells, marginal cells in acumen not or slightly inflated (Fig. 1), median cells 200–300 × 12–18 (–30) μm (Fig. 2), basal cells 100–120 × 20–30 μm . Dioicous. Perichaetial leaves 1.5–2.2 × 0.8–1.0 mm, mostly broadly ovate with gradually acuminate, entire apices. Perigonial leaves 0.8–1.4 × 0.4–0.5 mm, mostly ovate with gradually acuminate, entire apices. Seta 1.6–3.7 cm, deoperculate capsules 1.5–2.0 × 0.8–1.0 mm, operculum 1.4–1.6 mm long, the beak 1.0–1.1 mm.

TYPE: COSTA RICA. PROV. SAN JOSÉ: Along Inter-American Highway, 13 km SE of El Empalme, 9.40 N, 83.51 W, 2600 m, *Marshall R. & Carol A. Crosby* 5836 (MO, holotype; BA, BM, CR, DUKE, H, MICH, NICH, U, isotypes).

Additional specimens: COSTA RICA. PROV. CARTAGO: Dos Amigos area, near km 73 marker on Inter-American Highway, *Crosby & Crosby* 5957 (MO). PROV. HEREDIA: SW slopes of Volcán Barba, *Crosby* 3704 (BA, CR, DUKE, FH, H, NICH, U). Las Vueltas area, Río Patria, 18 km N of San José, *Crosby & Crosby* 6005 (B, CR, MO), 6608, 8523 (both MO). PROV. SAN JOSÉ: W side of Inter-American Highway, 17 km SE of El Empalme, *Crosby* 9761 (CR, H, MO), 9766 (MO), 10861 (CAMN, CHR, COLO, CR, FH, FLAS, IJ, L, LE, MEXU, MICH, MO, NAM, PAC, PC, PMA, S, SP, TNS, U, US).

Rhynchostegiopsis carolae is a large, fairly common moss in middle (2,100–2,680 m) elevations in central Costa Rica, but it apparently has gone undescribed. Welch (1976) treats only *R. flexuosa* (Sull.) C. Müll. as occurring in Central America. Robinson & Griffin (1975) have described *R. costaricensis*, a distinctive species which usually bears propagula on the dorsal surface of the leaves. *Rhynchostegiopsis complanata* C. Müll, the species to which *R. carolae* is most similar, occurs in Bolivia.

The distinctive features of *Rhynchostegiopsis carolae* are its large size coupled with the not or slightly inflated marginal cells in the apex of the leaves. The leaves of *R. complanata* (Bolivia, *Herzog* 4025, MO) are nearly as large, about 3 × 1 mm (Fig. 6), but the marginal apical leaf cells are greatly inflated, the leaf being coarsely serrate apically (Fig. 7). *Rhynchostegiopsis costaricensis* occurs sympatrically with *R. carolae* (*Crosby* 9754, CR, MO), but the much smaller



FIGURES 1-7. *Rhynchosstegiopsis*.—1-5. *R. carolae*.—1. Apical marginal leaf cells.—2. Median leaf cells.—3. Dorsal leaf.—4. Lateral leaf.—5. Ventral leaf. [1-5 after Crosby & Crosby 5836 (MO).]—6-7. *R. complanata*.—6. Dorsal leaf.—7. Apical marginal leaf cells. [6-7 after Herzog 4025 (MO).]

leaves ($2.0\text{--}3.0 \times 0.5\text{--}0.8$), inflated marginal cells in the apex, shorter seta (ca. 1.5 cm), and shorter operculum (ca. 1 mm) make it easy to distinguish. *Rhyncho-stegiopsis flexuosa* as treated by Welch is also much smaller with leaves $1.0\text{--}2.5 \times 0.2\text{--}0.6$ mm with more or less filiform, flexuous apices.

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LITERATURE CITED

- ROBINSON, H. & D. GRIFFIN, III. 1975. A new species of *Rhyncho-stegiopsis* from Costa Rica (Hookeriaceae, Musci). *Phytologia* 30: 281–283.
 WELCH, W. H. 1976. Hookeriaceae. *N. Amer. Fl.*, ser. 2, 9: 1–133.
 —Marshall R. Crosby, 2345 Tower Grove Avenue, Missouri Botanical Garden, St. Louis, Missouri 63110.

A NEW GYPSOPHILOUS SPECIES OF *GAILLARDIA* (ASTERACEAE) FROM CHIHUAHUA, MEXICO

Recent studies have led to the discovery of a number of new taxa endemic to gypseous soils in the southwestern United States and northern Mexico. Two gypsophilic species of *Gaillardia*, *G. gypsophila* and *G. powellii*, have already been described (Turner, 1972), and the species described here represents still another.

Gaillardia turneri Averett & Powell, sp. nov.—FIG. 1.

Herba perennis ad 3 dm alta ab caudex lignosa bene evoluta. Folia conspicue punctata leviter pubescentia.

Herbaceous perennial 30–75 cm tall, from a well-developed woody caudex. Stems erect, 20–50 cm long, leafy towards the base, striate. Leaves 5–7 cm long, 0.5–1.5 cm wide, the basal leaves with petioles 3–10 cm long, the upper leaves sessile or subsessile, pinnatifid, conspicuously punctate, glabrous or only slightly pubescent with soft white hairs. Involucre hemispheric 1.0–1.5 cm across, ca. 1 cm high; bracts in 2 series, ovate-lanceolate, 5–12 mm long, 1–2 mm wide, reflexed after flowering, villous. Receptacle convex, ca. 2 mm across and 1 mm high, with setae ca. 1 mm long. Ray florets 8, sterile; ligules yellow, ca. 1 cm long, 3–6 mm wide, 3-lobed, the lobes ca. 5 mm long. Disc florets numerous, collectively brownish-purple, the tube short, ca. 1 mm long, abruptly flaring into a tubular throat ca. 4 mm long, 1.0–1.5 mm wide; lobes short, acute, ca. 0.5 mm long, pubescent with purplish hairs. Achenes 2 mm long, densely pubescent with hairs extending beyond the achene. Pappus scales 10–12, ovate-lanceolate, attenuate into an awn, ca. 6 mm including a 3 mm awn. Chromosome number $n = 17$.

TYPE: MEXICO. CHIHUAHUA: Gypsum outcrops, 6.6 mi E of Hwy. 16 on road to new lake on Río Conchos, 6 Apr. 1971, A. M. Powell *et al.* 2025 (TEX, holotype; isotypes to be distributed).